

## INTRODUCTION

# The Diagnosis and Treatment of Occupational Diseases: Integrating Clinical Practice With Prevention

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## INTRODUCTION

Occupational medicine is a unique medical specialty linking the clinical care of individuals to preventive efforts in the workplace, thereby impacting not only the individual patient but also a larger at-risk population. An additional unique facet of occupational medicine is that, because the patient's illness is caused or aggravated by workplace exposures, the skill of the health care provider team in identifying workplace hazards and in facilitating workplace prevention efforts is often critical in both disease treatment and disability prevention. In recognition of the unique challenges faced by occupational health clinicians in integrating clinical care with preventive services, this issue of the *American Journal of Industrial Medicine* presents a collection of clinical practice reviews that address major issues in the field. These reviews were developed as part of the New York State Occupational Health Clinic Network's (OHCN) Quality Assurance/Quality Improvement Program (QA/QI). They are intended to assist clinicians in the diagnosis, treatment, and prevention of common occupational diseases. They have been used within the OHCN both to guide clinical practice and to form the basis of ongoing

quality improvement and assurance in a range of practice settings.

These reviews were initially developed to assist OHCN clinicians in conducting scientifically and clinically sound diagnostic evaluations and treatment of the following common occupational illnesses: asbestos-related diseases, work-related asthma, work-related upper extremity disorders, low back disorders, lead poisoning, noise-induced hearing loss, and solvent-related disorders. A guide for respirator clearance examinations was also developed. The clinical practice reviews are being used in the OHCN programs as ongoing guides for quality assurance; in this effort we compare our clinical practice with the practice approaches suggested in the reviews. Many Network clinics are members of the Association of Occupational and Environmental Clinics (AOEC) and are currently engaged in a chart-review type of quality assurance. These clinical practice reviews may be helpful in developing process measures for evaluation of quality of care.

## BACKGROUND

The New York State Occupational Health Clinic Network is unique in the United States as a publicly funded, statewide, public health-based occupational disease treatment and prevention service. The Network had its origin in 1986 when the New York State Legislature commissioned a study to evaluate the problem of occupational disease in the state and to develop recommendations for services that would improve the recognition, treatment, and prevention of occupational disease. The study was conducted under the

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guidance of an advisory board comprised of representatives from academia, labor unions, corporate medical departments, public health departments, and community groups from throughout the state [De la Hoz et al., 1997; Markowitz and Landrigan, 1989a,b].

The study, presented to the Legislature in February 1987, confirmed a shortage of resources in occupational medicine and described the heavy burden of occupational disease within New York State and the immense resultant costs. At the time of the study, there were only 73 physicians in the state who were board certified in occupational medicine; of these, most (49) were not involved in direct patient care. Additionally, most physicians providing diagnostic occupational medicine services (regardless of board certification) did not have the resources or multidisciplinary staff with which to conduct prevention activities.

The study found that “no fewer than 5000–7000 deaths resulted each year in New York State” from five categories of occupational disease: cancers, pneumoconioses, cardiovascular diseases, chronic respiratory diseases, and neurologic disorders. They also determined that at least 35,000 new cases of occupational diseases occurred each year. The study estimated the annual costs of just those five categories of occupational illness at \$600 million, and stated that the costs were disproportionately borne by the workers, their families, and taxpayers (through Social Security contributions and general tax revenues). The report concluded that most of these conditions were preventable, and that development of a statewide network of occupational health clinical centers would be an important step in preventing many of these illnesses [De la Hoz et al., 1997; Markowitz and Landrigan, 1989a,b].

As a result of this report, money was appropriated by the Legislature to initiate a statewide network of six regional occupational health clinics in 1987, with an initial allocation of \$1.0 million. The New York State Department of Health provided oversight.

Since that time, the Network has grown to include eight clinics plus seven satellite facilities. Those clinics reside in a variety of institutions, including state and private medical schools, an HMO, and a consortium of unions. Seven of the clinics are regionally based. They include: Eastern New York Occupational and Environmental Health Center (affiliated with Kaiser Permanente in Albany), Union Occupational Health Center (a free-standing clinic started by a consortium of unions in Buffalo), Long Island Occupational and Environmental Health Center (affiliated with SUNY at Stony Brook), Mount Sinai-Irving J. Selikoff Center for Occupational and Environmental Medicine (affiliated with Mount Sinai School of Medicine in New York City), Bellevue/NYU Occupational and Environmental Medicine Clinic (affiliated with the Health and Hospitals Corporation (HHC) and with New York University in New

York City), Finger Lakes Occupational Health Services (affiliated with the University of Rochester Medical Center), and the Central New York Occupational Health Clinical Center (affiliated with SUNY Health Science Center at Syracuse). The eighth clinic is the New York Center for Agricultural Medicine and Health (affiliated with Bassett Hospital in Cooperstown) with statewide responsibilities to diagnose, prevent, and conduct research in agricultural health and safety issues. The clinics’ funding is appropriated annually by the State Legislature, administered by the State Department of Health, and is derived from a surtax on Workers’ Compensation premiums of approximately 0.1%.

## CLINIC FUNCTIONS

The intent of the Clinic Network has been to establish regional community-based centers of excellence dedicated to the identification and prevention of work-related illnesses. The core of each clinic is a staff trained in occupational medicine which is available to provide diagnostic examinations for the full range of work-related illnesses. The clinics are open to anyone with a possible occupational health problem; a sliding fee scale assures access for those who are unemployed or without health insurance.

In addition to providing group screenings for health effects due to specific exposures such as asbestos, and providing expert diagnosis and treatment for individual occupational disease cases, the clinics utilize multidisciplinary teams comprised of health care providers, industrial hygienists, ergonomists, health educators, and social workers, to perform essential prevention activities.

While tending to the individual needs of each patient, the Clinic Network also has developed a public health oriented clinical approach. This involves determining whether coworkers are at risk, and taking steps to have them medically evaluated, as appropriate. Utilizing industrial hygienists on staff, the specific work factors involved in the development of patients’ disease are investigated, and recommendations are made for feasible, effective workplace interventions. Consequently, the impact of the clinics reaches well beyond those persons seen as individual patients [Herbert et al., 1997].

Education plays a central role in the Network’s prevention activities. Education about specific hazards and most general health and safety issues is provided in various ways: information is provided to patients at the time of their exam; programs tailored to a specific workplace or industry may be offered to a company or union; consultative services are offered to unions and employers; and conferences or symposia are periodically offered in the community.

Additionally, clinics serve as an educational source to other health care providers. This occurs by: offering medical students clinical rotations, teaching medical residents, offering continuing medical education courses or symposia

(often targeting primary care practitioners), and being available for consultations on a wide range of occupational medicine topics.

The educational activities, combined with targeted outreach, help to broaden public awareness of clinics. Although the clinics are part of a statewide network, their services are tailored to the specific needs of their communities. Each clinic has its own advisory board that includes representatives from organized labor, business, and the public health community. The boards meet regularly, providing advice to the clinics on policy issues and helping to assure that the outreach and education activities focus on the industries and occupations in their geographic area that have significant numbers of workers at risk of occupational illness.

Lastly, many of the clinicians conduct public health oriented research, focused primarily on the prevention of occupational disease.

## **DEVELOPING THE NYS OCCUPATIONAL HEALTH CLINIC NETWORK QUALITY ASSURANCE PROGRAM**

The NYS Department of Health (NYSDOH) is responsible for oversight and leadership of the Network, and for monitoring programmatic, administrative, and fiscal activities of the clinics. The Department has used a range of evaluative tools to assess the clinics' performance including: (1) regular review of patient data (there is currently information on more than 25,000 patients) to assess patient mix and trends in occupational disease; (2) on-going programmatic review of outreach, education and prevention/intervention activities; and (3) review of fiscal and organizational issues. Additionally, the Department staff conducts quality monitoring to ensure compliance with reporting requirements for state disease registries, provides assistance with strategic planning, acts as liaison between individual clinics and local/state government authorities, attends advisory board quarterly meetings, and coordinates the overall activities to ensure that the mission of the Clinic Network is achieved.

In addition to the guidance of the NYS Department of Health, Network clinics participate in quality assurance (Q/A) programs within their host institutions. These programs are important tools in evaluating general parameters of clinical practice. However, they are of limited value for occupational medicine services since they are generally not designed to capture the critical components of quality in public health practice.

Recognizing the need for a more comprehensive approach tailored to the requirements of occupational medicine, the Network initiated an expanded QA/QI development process. The clinical practice reviews in this volume were developed to support the QA/QI assessment process.

The primary goal in developing the QA/QI program has been to establish standards of clinical and prevention practice that can be used to assess both quality of care in individual clinics, as well as adherence to the network's mandate to link clinical care to workplace prevention. The QA/QI program has thus had two broad objectives: (1) to monitor the scope of service delivery thereby ensuring that Network Clinics are fulfilling their public health function when providing direct clinical care; and (2) to develop a systematic approach to the evaluation of the quality of individual care provided to Clinic Network patients. The program includes periodic external review by the NYSDOH and internal review by each clinic, assessing both administrative and programmatic functioning and direct clinical care via regular chart review.

The QA/QI program is consistent with the principles of quality assurance for occupational health clinics as articulated by the Association for Occupational and Environmental Clinics (reference). The program is being designed to capture the unique features of occupational medicine as articulated in the mission statement of the OHCN: "Occupational Medicine is a distinct medical specialty which links the clinical care of individuals with occupationally related disease to prevention at the workplace, thereby impacting not only the individual, but also a potentially larger at risk population. The complexity of this task requires the Occupational Medicine physician to work in collaboration with other professionals including industrial hygienists and ergonomists who specialize in workplace evaluation and exposure reduction; health educators who specialize in adult education for individuals and groups; social workers, lawyers and other professionals knowledgeable in the complexities of the Workers' Compensation System; and Public Health officials involved in the surveillance and prevention of occupational disease. This melding of clinical and public health functions is a distinguishing feature of Occupational Medicine and is fundamental to the specialty."

## **ABOUT THE CLINICAL PRACTICE REVIEWS**

The clinical reviews presented here were developed to meet the need among clinicians in the Network for systematic evidence-based clinical reviews for the diagnosis and treatment of occupational diseases, either due to toxic exposures or due to chronic exposure to poor workplace ergonomics. In selecting the topics to be covered, we attempted not to duplicate those covered in the recent reviews developed by the American College of Occupational Medicine Physicians, which focus on acute work related disorders [Harris, 1997].

The objectives in the writing and the peer review process of these clinical reviews were:

- (1) To develop clear statements addressing critical issues in the clinical diagnosis and management of the common occupational diseases.
- (2) To use evidence-based approaches when possible, and to develop practice reviews for Network clinics as a tool to foster quality of care and consistent practice.
- (3) To integrate public health approaches (primary, secondary, and tertiary disease prevention) into the clinical model and to emphasize a team approach to the diagnosis and treatment of work-related disorders.

Development of these reviews was initiated in 1990, when the initial “protocols” were developed for informal use within the Clinic Network. In 1997, more formalized development and review processes were initiated. The initial “protocols” were incorporated where appropriate and were rewritten as clinical reviews. For each topic chosen, authors were instructed to review the English language literature on diagnosis, ascertainment of work-relatedness, and treatment. The time period for which the literature should be reviewed was not specified.

Each review was developed by clinicians from the Clinic Network with experience in the diagnosis and treatment of that particular disorder. The drafts were reviewed in a series of Clinic Network meetings attended by the clinic medical directors and other professional staff. Revisions were made based on this feedback. The revised clinical reviews were then sent to two external reviewers and were re-revised based on the external review.

Finally, each set of clinical reviews was re-reviewed by the editors to ensure that the authors had responded both to internal network suggestions and the critiques of the external reviewers. The names of these external reviewers, who devoted substantial time and effort to the development of the reviews appear below.

A standardized chart review form is being developed for each occupationally related disorder based on Network-wide decisions regarding acceptable standards of care for the diagnosis and treatment of the condition of interest. The forms will be pilot tested. Additionally, standardized history, physical, and other data recording forms will be developed to facilitate quality assurance and improvement and to standardize the evaluation. Forms will be developed utilizing previously standardized instruments where they exist.

In summary, we offer a series of clinical practice reviews that form the basis of the New York State Occupational Health Clinic Network Quality Assurance/Quality Improvement Program. They are being disseminated because clinicians in the Network have found a paucity of literature-based documents that provide guidance for the practicing occupational medicine physician in the diagnosis and the clinical management of occupationally-related disorders. In particular, there is a dearth of work that

incorporates the public health oriented prevention approach directly into clinical practice. Although the dissemination of these clinical reviews may generate controversy, we hope they will expand existing knowledge in the field and contribute to improved diagnosis, treatment, and prevention of occupational disease.

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